LOB #386:

WASTEWATER COLLECTIONS

Purpose

In order to comply with Federal and State water quality regulations the wastewater conveyance system must be maintained to prevent sanitary sewer overflows, backups, and spills. The Wastewater Collection line of business has adopted a framework of sewer maintenance and management techniques, called Capacity, Management, Operation, and Maintenance (CMOM). CMOM aims to help localities eliminate sewer backups and overflows, extend the life of its sewer system assets, increase customer satisfaction, and improve system rehabilitation and diagnostic methods. In accordance with CMOM, the County implemented new operations and maintenance procedures aimed at rehabilitation projects focused on trunk lines, sewer mains, manholes, and pumping stations.

Description

The Wastewater Collection Division (WCD) is responsible for the operation and maintenance of the collection system which includes the physical inspection of sewer lines, performance of preventive maintenance, the rehabilitation of aging and deteriorated sewer lines, and pumping stations; raising manholes, sewer line location and marking for the Miss Utility Program. The division also responds to emergency repair of sewer lines and provides a 24-hour hotline and service response to homeowners in the County. The system consists of the following components:

- Approximately 3,412 miles of gravity sewers and force mains
- 63 sewer pump stations
- 54 flow metering stations
- 11 rain gauge stations
- 135 grinder pumps and associated pressure sewer systems
- Robert P. McMath Facility (Operations and Maintenance Headquarters)

WCD had 132 permanent staff positions for FY 2015 with no change projected for FY 2016. All WCD employees work out of the McMath Facility in Burke, Virginia. The organizational structure of the WCD includes the Director's Office and three branches: Gravity Sewers, Pumping Stations and Projects and Assets.

Benefits

The Wastewater Collection LOB provides sewer service, and protects public health, aquatic life and the environment within Fairfax County. The Wastewater Collection LOB implements several vision elements in the 2015 Strategic Plan to Facilitate the Economic Success of Fairfax County, as noted below. Primary Correlation to County Vision Elements to include:

- **Maintaining Safe and Caring Communities -** One key element to maintaining a safe community is providing the infrastructure for a growing and diverse community to be able to travel, whether it's through roads, pedestrian walkways, or public transportation. The wastewater collection LOB provides wastewater conveyance from the homes and commercial buildings people are traveling to and from.
- **Building Livable Spaces** - Wastewater collection allows for building livable spaces by ensuring the wastewater can be safely conveyed from the homes and businesses to the treatment facilities.
- **Maintaining Healthy Economies** - Wastewater collection is a key element in providing community infrastructure through County funded public projects to support a diverse and thriving economy.
- **Practicing Environmental Stewardship -** Wastewater collection ensures the County's natural environment and open spaces are protected from pollution by providing the highest quality conveyance system and treatment facilities.

Mandates

Laws that govern wastewater conveyance systems include:

- Clean Water Act PL 92-500
- Code of Virginia §62.1-44

Trends and Challenges

There are a number of challenges and trends in wastewater collection. The most immediate is aging infrastructure. The following table lists the collection system components and their service life.

Estimated Amortized Asset Replacement			
Asset Category	**Programmed Service Life**	**Average Service Life**	**Remaining Service Life**
Gravity Line	60	34	26
Pump Station	30	28	2
Force Main	60	17	43
Other	30	12	18

At present, the dollar weighted average age of the collection system facilities is 23 years. As the facilities reach their useful age, it is more difficult to maintain the needed level of service (permit compliance). When lines fail and an emergency by-pass operation has to be implemented, it is very costly. An emergency repair/replacement can be two to three times more costly than a planned repair/replacement. It is very important that as the collection system assets age, a progressive asset management program is being employed.

Trends include difficulties in recruiting qualified personnel; improvements in Asset Management Program support; focus on environmental stewardship; and stricter regulations.

Challenges include aging infrastructure; staff turnover; slower capital project delivery; climate change risk (flooding, power outages); more safety regulations; and sewer line capacity.

Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
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FUNDING			
Expenditures:			
Compensation	$6,893,914	$6,800,274	$7,940,010
Benefits	2,762,585	2,837,401	3,226,341
Operating Expenses	4,043,247	3,920,448	4,176,510
Work Performed for Others	(419,164)	(530,035)	(164,868)
Capital Equipment	558,297	2,049,005	937,721
Total Expenditures	$13,838,879	$15,077,093	$16,115,714
Transfers Out:			
Transfer Out to General Fund	$1,800,000	$1,800,000	$2,850,000
Total Transfers Out	$1,800,000	$1,800,000	$2,850,000
Total Revenue	$15,638,879	$16,877,093	$18,965,714
POSITIONS			
Authorized Positions/Full-Time Equivalents (FTEs)			
Positions:			
Regular	132 / 132	132 / 132	132 / 132
Total Positions	132 / 132	132 / 132	132 / 132

Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Sanitary sewer overflows	16	21	12	15	15
Percent of sewage back-ups responded to within 2 hours	100%	100%	100%	100%	100%
Blockages causing sewer back-ups	16	15	16	15	15
Service trouble calls received	921	1,058	882	1,000	1,000

The Wastewater Collection uses metrics to improve performance and ensure regulatory compliance. The four metrics used for this LOB demonstrate the commitment to maintaining the highest quality of work, regulatory compliance, and efficient operation.

- Sanitary sewer overflows - As the system reaches full capacity, an increase in overflows may occur more frequently in wet weather events. The number of overflows went down to 12 in FY 2015 from 21 in FY 2014. The County's overflows are well below the national average of 4.3 overflows per 100 miles of sewer.
- Percent of sewage back-ups responded to within 2 hours – Wastewater collection crews were able to respond to all calls within 2 hours in FY 2015.
- Blockages causing sewer back-ups - As the system ages, an increase in back-ups may occur more frequently as more blockages occur in older systems. Even with the aging system, the collection crews were able to maintain an average of 16 back-ups in FY 2015, which is well below the national average of 4.3 overflows per 100 miles of sewer.
- Service trouble calls received - The 882 service trouble calls received in FY 2015 were all responded to in less than 2 hours. This number is down from FY 2014 of 1,058 calls.